V. DISEASES OF FOREST AND SHADE TREES

ASH (Fraxinus)

RUST - Puccinia sparganoides Ell. & Barth.

A trace of rust was found on the leaves and peticles of white ash (F. americans L.) in the Provincial Forest Nursery, Berthierville, Que. A single specimen was found on the same host in York county, N.B.

Leaves of white ash were fairly heavily infected with Piggotia Fraxini Berk. & Curt. at Berthierville.

BASSWOOD (Tilia)

POWDERY MILDEW - Uncinula Clintonii Pk.

Powdery mildew was found on basswood leaves near Farmer's Rapids, Que.

BEECH (Fagus)

ROT - Panus stipticus Fr.

Panus stipticus was very common on dying beech at Kentville, N.S.

BUTTERNUT (Juglans)

LEAF SCORCH - Marssonina Juglandis (Lib.) Magn.

Leaf scorch is general on butternut throughout Quebec. It has been observed from Ottawa to Montreal and Quebec City. It was also present east and south of Montreal throughout the Eastern Townships to Sherbrooke, Stanstead, Hemmingford, and Franklin Centre. Specimens were collected and determined from Abbotsford and St. Sulpice (H.N. Racicot).

CEDAR (Cedrus)

The current year's growth of young deodar cedars (Cedrus deodara Laws.) was found killed in a nursery at Vancouver, B. C. on July 15. The conidiophores of a Botrytis were plentiful on dead and dying shoots. The injury may affect the symmetry of growth. The previous month was exceptionally wet.

CHESTNUT (Castanea)

BLIGHT - Endothia parasitica (Murr.) Anders. & Anders.
Stands of the native chestnut (Castanea dentata) were found severely damaged by blight in Welland, Lincoln, and Norfolk counties. Trees were being killed outright by the disease.

ELDER (Sambucus)

Leptosphaeria sambucina Ell. & Ev. was found on elder in the University nursery at Saskatoon, Sask.

ELM (Ulmus)

BLACK SPOT - Gnomonia ulmea (Schw.) Thüm.
Que.- Black spot was collected on slippery elm (Ulmus fulva Michx.) at Lennoxville. Specimens were also observed in the Provincial Forest Nursery, Berthierville. Forty to 50 per cent of the leaves were infected; on 5 per cent the infection was moderate to severe.

N.B.- A trace of black spot was present on elm in York county. Specimens were identified by Dr. Dearness.

BALSAM FIR (Abies balsamea)

WITCHES' BROOM - Melampsorella Caryophyllacearum Schroet.
N.B.- This disease is common throughout the province.

N.S.- Witches' broom was observed in Kings and Annapolis counties. It may be found in most stands of fir in western Nova Scotia.

MAPLE (Acer)

Box Elder (Acer Negundo)
One tree, whose upper limbs were seriously diseased in 1929, is now in a very stunted sickly condition at Saskatoon, Sask. The majority of the younger shoots are dead and bear abundant pycnidia of Sphaeropsis albescens Ell. & Ev. (R.C. Russel).

Septoria Negundinis Ell. & Ev. and Piggotia Negundinis Ell. & Dearn. were collected on leaves at Martinville, Que.

Red Maple (Acer rubrum)

A species of Phoma was found killing the young twigs in Lincoln county.

Norway Maple (Acer platinoides)

One tree was completely defoliated as a result of being affected with wilt (Verticillium sp.)

Silver Maple (Acer saccharinum)

A trace of tar spot (Rhytisma acerinum (Pers.) Fr.) was collected at L'Assomption and Ste. Anne de la Pocatière, Que. It was reported on the same host from Queens county, P.E.I. The disease is common throughout New Brunswick, causing slight damage.

Mountain Maple (Acer spicatum)

Powdery mildew (Uncinula circinata Cke. & Pk. was collected near Farmer's Rapids, Que.

FIRETHORN (Pyracantha)

SCAB - Fusicladium sp.

On a number of occasions the leaves and fruit of Pyracantha coccinea Roem. have been found covered with sooty spots, at Vancouver, B.C. A fungus was present on these spots which is indistinguishable from Fusicladium on apple or pear. The degree of infection is comparable to that of scab on Flemish Beauty pear in a bad season (J.W. Eastham).

HAWTHORN (Crataegus)

FIRE BLIGHT - Bacillus amylovorus (Burr.) Trev.

P.E.I.- Fire blight caused slight damage on C. Oxyacantha var. rosea grafted on a hardy stock at Charlottetown. The disease has been practically eliminated by careful pruning.

RUST - Gymnosporangium clavariaeforme (Jacq.) DC.

P.E.I. - This rust caused slight damage to hawthorn in Queens county.

HORSECHESTNUT (Aesculus)

LEAF SPOT - Phyllosticta sphaeropsoidea Ell. & Ev.

P.E.I.- This disease occurs commonly in Prince Edward Island

and frequently causes severe injury during mid-summer. Infection varied from a trace to 60 per cent of the leaf surface.

MOUNTAIN ASH (Sorbus)

FIRE BLIGHT - Bacillus amylovorus (Burr.) Trev.

P.E.I.- Fire blight causes slight to severe damage on both American and European mountain ash. Frequently the trees succumb to the disease.

OAK (Quercus)

LEAF CURL - Taphrina caerulescens (Mont. & Desm.) Tul.

Alta.- Specimens of this leaf curl were collected at Beaverlodge. It caused moderate damage. The fungus was identified by Dr. Dearness.

HEART ROT - Polyporus sulphureus (Bull.) Fr.

N.S.- Heart rot occurs on some trees of red oak year after year at Kentville.

HEART ROT - Polyporus frondosus (Dicks.) Fr.

N.S.- Large clumps of this polypore have been growing at the bases of red oak trees for the past three years at Kentville. In one instance the side of the tree was decayed.

PINE (Pinus)

WHITE PINE BLISTER RUST - Cronartium ribicola Fischer

B.C.- White pine blister rust is evidently well established in the Kootenay Lake district on western white pine. Blister rust scouts of the United States Dept. of Agriculture collected numerous fruiting cankers along the western arm of Kootenay Lake between Nelson and Proctor.

Ont.- This rust was collected on Pinus Strobus L. var. umbraculifera Knight and P. monticola Dougl. in the Arboretum at Ottawa.

Que.- Besides Mr. Pomerleau's report on white pine blister rust (see p.105) the disease was recorded on pine as follows:-

Wychwood and Lac Beauport, specimens received.

Hull, several small pines were found infected in a pasture. One tree, two and a half inches in diameter, was affected at the base.

Deux Montagnes county, rust present for the past two years in a stand of 100,000 pines. Probably it would be worth while to eradicate the Ribes.

Chateauguay, 16 ornamental trees were nearly all dead on account of rust. The trees are 15 years old and they have been affected for at least four years.

N.B.- Only two reports were received from extensive forest areas.

N.S.- The rust is on the increase in western Nova Scotia. In a clump of trees at Kentville, 50 per cent were affected. On May 6, aecia were abundant and shedding spores.

P.E.I.- White pine blister rust caused severe damage in Queens and Prince counties. Many trees have died from rust.

BLISTER RUST - Cronartium Comandrae Pk.

B.C.- One half of one per cent of the young trees of Pinus ponderosa Dougl. were affected with this rust at Summerland. It causes the death of the young trees and is occasionally found on old ones.

Sask.- This rust was found near Macdowall, Sask. on Pinus Banksiana.

NEEDLE RUST - Coleosporium Solidaginis (Schw.) Thüm.

Sask.- The needles of Pinus Banksiana Lamb. were lightly infected near Macdowall, Sask. not far from where the rust was found last year.

NEEDLE CAST - Lophodermium pinastri (Schr.) Chev.

N.B.- Occasional infections of needle cast were noted throughout the province.

N.S.- Needle blight was very prevalent on trees along roads and in the driest parts of the woods at Waterville, Goldbrook, and Kentville. Considerable Lophodermium pinastri was present on fallen needles. It is thought that the drought of 1930 may have been an important factor in causing the death of the needles.

POPLAR (Populus)

CANKER - Hypoxylon pruinatum (Klotzsch) Cke.

Sask.- This canker is common on P. tremuloides Michx. in many districts of Saskatchewan. It is distinctly parasitic and by girdling the tree causes the death of scattered individuals in the bluffs. About 5 per cent of the trees were dead or dying, apparently due to this canker, in a bluff near Saskatoon. (R.C. Russell).

Que.- A severe infection was reported from Blue Sea Lake.

LEAF SPOT - Septoria populicola Pk.

Ont.- A slight infection of this leaf spot was present on Populus Tacamahaca Mill. (P. balsamifera Duroi not L.) at Kemptville.

CANKER - Cytospora chrysosperma (Pers.) Fr.

Alta.- This canker was more common in southern Alberta than in 1930, although it was less common in the area north of Calgary. Little killing was observed.

Sask.- Cytospora chrysosperma was abundant on dying trees of Russian poplar in the University orchard, Saskatoon. It was hard to estimate the damage caused by the fungus, but it is thought to be a weak parasite, which followed injury due to drought.

SPRUCE (Picea)

Needle Rust - Peridermium sp.

Ont.- Blue spruce growing in the Arboretum and about city residences, Ottawa, were heavily infected with a needle rust. The trees showing rust in the Arboretum were labelled as follows: Picea Engelmannii and its variety glauca; P. pungens and varieties argentea, glauca, Kosteri, and Kosteri glauca. No rust was found on P. Engelmannii var. argentea or on many other species of Picea growing in the Arboretum. As the pycnia are deep-seated under the epidermis it is thought that the Peridermium is connected with a species of Chrysomyxa (I.L. Conners).

P.E.I.- This needle rust caused a slight infection on blue spruce in Queens county.

Dr. Meyer-Wegelin of Hannoversch-Münden, Germany, who spent the summer in the region of Matamak, Que., reported that the surface of the water in that region was covered with a very fine

dust. On examining samples of this dust, it was found to consist exclusively of aeciospores. It is probable that these spores were those of the needle rusts of spruce, which were abundant in that region. (H.T. Güssow).

Coniophora byssoidea (Pers.) Fr. was found attacking spruce seedlings in a consignment from France. The percentage of infection was slight. The fungus was determined by Dr. L.O. Overholts (Forest Herbarium and Culture 1686).

WILLOW (Salix)

SCAB - Fusicladium saliciperdum (Ell. & Tub.) Tub.

Que.- Scab was reported from Compton and Sherbrooke counties.

N.B.- Scab was common throughout the entire province.

N.S.- Scab and black canker is rapidly destroying Salix vitellina in Nova Scotia. Ten per cent of the trees surviving from previous years were killed. The damage caused by these two diseases can not be estimated separately. (K.A. Harrison)

P.E.I.- Scab is destroying many trees in each county.

BLACK CANKER - Physalospora Miyabeana Fukushi

N.B.- Black canker is common in association with scab.

N.S.- Black canker along with scab is very serious in Nova Scotia.

CANKER - Cytospora chrysosperma (Pers.) Fr.

Alta.- Cytospora chrysosperma was pentiful on dead limbs of willow in windbreaks in Alberta.

N.S.- Cytospora chrysosperma apparently kills the twigs early in the spring but it is not active in the summer. Five per cent of the twigs were damaged on Salix babylonica at Kentville.

DIE BACK - Cytospora sp.

Sask.- Considerable die-back is present in the willow windbreaks around the University orchard, Saskatoon. A species of Cytospora is fruiting on the dead limbs.

LEAF SPOT - Gloeosporium Salicis West.

Que.- Specimens of this leaf spot were collected at Berthierville.

N.S.- This leaf spot caused some defoliation, late in the season, at Kentville.

Rhytisma salicinum (Pers.) Fr. heavily infected narrow-leaved native willows at Biggar, Sask. A moderate infection was reported on willow in Rouville county, Que.

Gloeosporium boreale Ell. & Ev. was collected at Lennoxville, Que.

Uncinula Salicis (DC.) Wint. was common in northern Saskatchewan. It was also reported from Lennoxville, Que. and Queens county, P.E.I.